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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/799,675	03/15/2004	Yong-Nien Rao	RAOY3002/EM	8660

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ALEXANDRIA, VA 22314

EXAMINER
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TRAN, HENRY N

ART UNIT	PAPER NUMBER
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2629

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/13/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/799,675

Applicant(s)

RAO ET AL.

Examiner

Henry N. Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4, 6-8 and 10-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-8, 10-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. The amendment received December 22, 2006 has been entered. Claims 1-4, 6-8 and 10-12 remain pending in this application.

#### ***Response to Arguments***

2. Applicant's arguments, see pages 8-12 of the above identified amendment, with respect to the rejection of claims 1-12 under 35 USC 102(e) have been fully considered but they are not persuasive because of the following reasons:

(i) First, in response to applicants' argument that the Takeda et al patent (U.S. Patent No. 7,027,025) fails to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "arranges the polarities on a frame based on the sum of coupling voltages or the sums of all the polarity data vector", "a plurality of sets of polarity data and a plurality of corresponding PAC signals are stored in advance", and "the polarity arrangement for a frame according to the invention can be aperiodic") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993);

(ii) Second, applicants argued that Takeda tries to suppress flicker appear on a display screen primarily by accumulating and subtracting the signal levels of pixel data for odd-numbered lines and even-numbered lines to generate an alternation signal for changing the voltage polarity applied to a liquid crystal layer; whereas, "the inventive feature of arranging the polarities on a frame based on the sum of coupling voltages or the sums of all the polarity data

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vectors". The examiner respectfully disagrees because: the claimed invention does not requires "arranging the polarities on a frame based on the sum of coupling voltages or the sums of all the polarity data vectors", particularly, the argued limitations: "a frame" and "the polarity data vectors" are not included in the claims; and clearly, accumulating operation and subtracting operation are correctly used to read on the claimed limitations: "an inner product operation" and "comparing". It's noted that, as indicated in item 3 of the prior Office action, since the claimed limitation "an inner product operation" has no written description support in the specification; particularly, no description how "each set of polarity data" and "the display data" are used to perform in "an inner product operation"; the claimed term "an inner product operation" has been given its broadest reasonable interpretation; and the operation of the adders or accumulators (103) and (104) for accumulating the signal levels of pixel data of the odd-numbered lines and the even-numbered lines of a frame as taught by Takeda is therefore read on said claimed limitation.

(iii) Thirdly, applicants argued that Takeda conversion device 102 is not for storing a plurality of sets of polarity data and a plurality of PAC signals; Further, Takeda accumulators A103 and B104, and Registers A105 and A106 is different from the operation unit as claimed; and further also, Takeda subtracter 107 is also different from the comparison unit of the invention. The examiner respectfully disagrees because Takeda does teach that the serial/parallel converter (102) is used to received display data (101) and clock signals (113), wherein, the display data is constituted a large number of pixel data, which are classified into pixel data of odd-numbered lines and pixel data of even-numbered lines, and are received by the operating unit which comprises an adder (A103 and B104) (Takeda says "accumulators") for accumulating

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the signal levels, and the accumulated values are stored in the registers A105 and B106 for comparing using the comparison unit (107) (Takeda says “subtractor”). Takeda further teaches that a decoder (150) is used for receiving and classifying the display pixel data, and the register group (151) is used for storing the classified pixel data for providing to the adder (152) for further processing. It is clear from the Takeda Figs. 1 and 8 that in order to provide the odd-number lines pixel data and the even-numbered lines pixel data to the adders A103 and A104 according to the clock signals (113), the display data after being classified as pixel data must be stored in a register similar to the register group (151) noted above for sequentially provided to the accumulators, accordingly, the conversion device 102 is inherently comprising a decoder and a register for storing pixel data and clock signals; Further, Takeda accumulators A103 and B104, and Registers A105 and A106 are used to accumulate values of signal levels of respective pixel data for obtaining the accumulated value of signal levels of pixel data for each set of pixel data (odd-numbered lines pixel data and even-numbered lines pixel data) for every frame; the accumulated values are compared with each other, or with a reference value for outputting an alternation selection signal (116) for outputting an alternation signal (115), which is read on the claimed “outputting the PAC signal”, see Takeda, Figs. 1 and 8, col. 7, line 17 to col. 8, line 2. Clearly, Takeda operation unit comprising the accumulators A103 and B104 and the registers A105 and A106 is functioned as the claimed “an operation unit”, and Takeda subtracter (107) is functioned as the claimed “a comparison unit”. It’s noted that because applicants’ disclosure and the claimed invention does not specifically define how to compare the sum of the coupling voltages with each other, or with a predetermined value; the subtracter for subtracting of

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accumulated values, and between accumulated values and the reference value is read on the operation of the claimed “a comparison unit”

(iv) Finally, the cancellation of claims 5 and 9 have overcome the objection of the claimed term “a polarity inverting unit” and the rejection of the claims as recited in items 3-5 of the prior Office action.

Upon further consideration, new objections to the drawings and rejections under 35 U.S.C. 112, first and second paragraphs are made hereinafter. Appropriate corrections to the drawings and amendments to the specification and/ or claims under 37 CFR 1.121(b-d) will overcome said objections and rejections. No amendment may introduce new matter into the disclosure of an application.

### *Drawings*

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the: “sets of polarity data”, “a plurality of sets of polarity data”, “a plurality of PAC signals”, “an inner product operation”, “a sum of coupling voltages” (claims 1 and 6); “an adder” (claim 4); and “one set of PAC data” (claims 10 and 12) must be shown or the features canceled from the claims. No new matter should be entered.

4. The step S504 of Fig. 5 is objected to because it indicates “RECEIVE A NEXT SET OF POLARITY DATA AS NEW PAC SIGNAL”, which is unclear because it has no written support in the specification. In contradiction, the amendment to the specification, see pages 2

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and 3 of the above identified amendment, indicates that: “the storage unit 3211 is ... for storing the plurality set of polarity data and the plurality of PAC signals”, which clearly indicates that set of polarity data and PAC signal are two different identities. Is that “AS” means “AND”? An explanation and /or written support in the specification, or correction of the drawing is required.

Corrected drawing sheets in compliance with 37 CFR 1.121(d), are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objections to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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6. Claims 1-4, 6-8 and 10-12 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The limitation of “the operation unit is operative to perform an inner product operation ...” is critical or essential to the practice of the invention, but not included in the claims is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). The disclosure is not enabling because of the following reasons:

Firstly, applicants’ amendments to the specification, see pages 2 and 3 of the above identified amendment, indicates that “the operation unit 3212 uses the adder to perform an inner product operation with respect to the polarity data vector and the display data vector for obtaining an absolute value of the inner product as a result. That is, the result corresponds to a sum of coupling voltages of the PAC signals of the polarity data vector. For example, the result is +4 (step S502)”. However, the way or ways that the adder processes the polarity data vector and the display data vector for performing “an inner product operation”, or for having the result is +4, has not been described, or lacks of written support in the specification and/or illustrated in the drawings.

Secondly, the examiner has found that the terms: “polarity data vector” and “display data vector” are not included in the claimed invention; also, the examiner is unclear about how an adder is used for performing an inner product operation with respect to: (i) “the polarity data of each set of polarity data and the display data for obtaining a sum of coupling voltages corresponding to the polarity data of each set of polarity data;” as recited in claim 1; (ii) “each set of polarity data and the display data for obtaining a sum of coupling voltages corresponding to the polarity data;” as recited in claim 6; (iii) “the at least one set of PAC data and the display data for obtaining a sum of at least one coupling voltage;” as recited in claim 10; and (iv) “each



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set of polarity data and the display data for obtaining a sum of a plurality of coupling voltages corresponding to the at least one set of polarity data;" as recited in claim 12.

Since each of the claims does not set forth any steps involved in the use of the operation unit (3212), particularly, the adder; it is unclear how this invention is actually practiced.

### ***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 10-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 10 and 11 recites the limitation "the at least one set of PAC data" in lines 5 of the base claims 10 and 12. There is insufficient antecedent basis for this limitation in the claims.

### ***Claim Rejections - 35 USC § 102***

9. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

10. Claims 1-4, 6-8 and 10-12 stand rejected under 35 U.S.C. 102(e) as being anticipated by Takeda (U.S. Patent No. 7,027,025) as recited in item 5 of the prior Office action.

### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. They are U.S. Patents Nos.: 7,030,843 issued to Youn, and 6,628,256 issued to

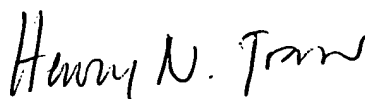
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Nishimura, which teach a timing generator or a polarity reversal drive circuit for a liquid crystal display device.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Henry N. Tran whose telephone number is 571-272-7760. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin H. Shalwala can be reached on 571-272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Henry N Tran  
Primary Examiner  
Art Unit 2629

HT  
3/7/07